



## **Continuous Methane and Carbon Monoxide Concentration Measurements along the NEEM Core**

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Since the early 1980s, atmospheric CH<sub>4</sub> records have been obtained from ice cores through discrete sampling and gas chromatographic measurements. Typical sample resolutions can reach down to decades for certain time periods, with usual uncertainties of  $\pm 10$  ppbv. There are very few available CO records, using similar techniques. Recent developments of optical instruments allow now measurements of CH<sub>4</sub> and/or CO concentration directly on the drill site or in the laboratory using continuous flow analysis (CFA) systems. The air in the CFA melt stream is extracted with a hydrophobic membrane unit, dried, and routed through the optical cavity of one or two instruments in series. We present here the first continuous measurements obtained along the NEEM (Greenland) core with an unprecedented resolution. The last 2000 years have been measured for both CH<sub>4</sub> and CO. CH<sub>4</sub> was also measured on older ice back to the last interglacial. Continuous measurements allow us to determine with high precision the location in depth of rapid CH<sub>4</sub> changes and to discuss finer structures in the signal. In addition they provide a direct comparison between the chemical composition of the ice and the gas record at the same depth, thus providing information about possible local artifacts of trace-gas production within the ice.